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THE GENUS ANACOLIA IN NORTH AMERICA.

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Among some plants recently sent me by Mr. E. P. Sheldon I found a moss which was evidently a *Bartramia* but which from its gross appearance I refused to refer to *Bartramia Menziesii* Turn. It has a comparatively scant supply of red radicles clothing the stems below the shoots; its leaves appear more rigid and darker green; and the capsules are markedly longer cylindrical. After repeated study, looking up all the available literature on *Bartramia* and related genera, I concluded that I must have *Glyphocarpa Baueri* Hampe, which is cited as a synonym of *Bartramia Menziesii* in L. & J. Manual, p. 204. The note in the Manual in fine print under the species but strengthens me in my supposition that I have rightly diagnosed this plant. (E. P. Sheldon's No. 10050).

The following characters are clearly established in the course of my examinations: the stem sections show the epidermis beset with papillae, and are octagonal, showing an eight-ranked leaf arrangement: the leaves are almost devoid of papillae, only a few occurring along the costa on the upper, inner surface, so that an ordinary observation would lead to the conclusion that there are none at all: lastly the plants are evidently dioicous. Now Limpricht in his diagnosis of the genera of Bartramiaceae assigns to *Bartramia* only plants with synoicous or autoicous inflorescence, with striped and furrowed capsules and with leaf base mostly sheathing. In none of these characters did the plant before me agree with *Bartramia*, but on careful comparison with Californian *B. Menziesii* I found to my surprise that it agreed in all these points and that furthermore its peristome is as figured in Sullivan's *Icones*, Suppl. t. 26. Indeed in dissecting one capsule I found one solitary ghost-like translucent real tooth, the mates of which must have been left behind in the lid, and which must be the "pellucid membrane" referred to in L. & J.'s footnote, only here the full set of so-called teeth as figured by Sullivan were also present. Therefore, I am led to express the opinion, which needs verification by other observers, that Sullivan's figure really shows segments, not teeth. This view is the more plausible since they look more like "segments" of certain other genera than like bryaceous "teeth."

A still closer comparison of the California and Oregon plants led to the discovery of at least two specific differences: the capsule in the California plant has about $\frac{1}{4}$ of the entire length, namely that part which is below the loosely hung spore sac contracted into a distinct collum; and the spores measure $28-30\mu$; while the capsule of the Oregon plant shows no collum at all, the spore sac descending lower down and the remnant does not contract into a collum; and the spores measure only $18-22\mu$. For these reasons I hold that the Oregon plant must after all be distinct from *B. Menziesii* and can not well be produced simply by differences in exposure, as is suggested by Lesquereux and James.

Now I felt these plants could not stand under *Bartramia*, in Limpricht's sense, neither could I bring them under the next genus, *Anacolia*, unless I restricted myself to the characters predicated in the Key to Genera (Laub-

moose, Vol. II, p. 534), "Capsule unstriped, not furrowed, dioicous." These three points agree perfectly with both our west coast plants. Nor was I encouraged to place them here on reading the original description of the genus in Sch. Syn. 2 Ed. p. 513: "Plants caespitose, quite stout, very radiculose. Leaf arrangement and leaf structure as in the genus *Bartramia*. Flowers dioicous, the male ones gemmiform. Capsule on a short pedicel (whence the Greek name meaning "short foot"), erect, spherical, symmetrical, not striped, when dry not sulcate, but strongly wrinkled or rugulose, leptodermous, with a much shorter spore sac. Peristome none. Spore as in *Bartramia*. The genus is very distinct from *Glyphocarpa* Rob. Brown. It differs from *Bartramia* by the capsule being quite leptodermous, unstriped, when dry not furrowed and by the mouth being always naked. Several exotic species are known." Thus says Schimper.

The only species the description of which is accessible to me is *Anacolia Webbii* (Mont.) Schimp. in Limpricht Laubmoose, Vol. II, p. 547, has ascribed to it "very strongly prickly-papillose radicles, lamina mamilllose on both sides," neither of which characters is found on our two American plants. From the genus as characterized by Schimper they seemed at first sight excluded by the presence of a peristome, and by the shape of the capsule, however fitting into it in other respects. So I find myself in a measure reconciled to the view indicated in Paris' Index which correctly gives, first *Anacolia Baueri* (Hpe.) Par., as the name for our Oregon plant; second, *Anacolia Menziesii* (Turn.) Par., as that for the more southerly plant.

The admission of these American plants into the genus *Anacolia* demands a modification of Schimper's characterization, somewhat as follows: **Anacolia Schimp.** emend—Plants caespitose, more or less strongly cohering below the shoots of the season by a felt of brown radicles which are either prickly-papillose or minutely roughened. Branching monopodial and dichasial. Stem eight-angled, rough-papillose. Leaf arrangement eight-ranked; leaf form and reticulation as in *Bartramia*, but leaf base not sheathing at all. Inflorescence dioicous, antheridial buds gemmiform. Capsule *usually* on a short pedicel (the names does not literally apply to the American representatives), erect, spherical or cylindrical, symmetrical or slightly curved, unstriped, when dry not furrowed but strongly rugulose, leptodermous, with a shorter, loose spore sac and a persistent columella (in the American species). Peristome none or consisting of 16 so-called teeth, and these inserted half their length below the mouth of the capsule.

In this sense we can admit our two west coast mosses into the genus *Anacolia*. Of course the question of the full specific value of *Anacolia Baueri* is unsettled; that it is different from *A. Menziesii* is certain, but whether to write it as a variety of the latter species becomes largely a matter of taste.

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